

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A reclining vehicle seat hinge assembly comprising, in combination:

a first housing;

a second housing rotatable with respect to the first housing, and having a circular shoulder and a plurality of teeth extending radially inward from the shoulder;

a primary cam rotatable with respect to the first housing and having a pair of primary camming surfaces;

a secondary cam rotatably driveable by the primary cam and having a plurality of camming surfaces;

a pair of diametrically opposed primary pawls, each primary pawl slidable radially with respect to the first housing, having a first and a second cam engaging member and a plurality of radially outward extending teeth, and configured to be driven radially outward by engagement with the primary cam into an engaged position where the teeth of the primary pawl engage with the teeth of the second housing, and to be driven radially inward by the secondary cam into a disengaged position where the teeth of the primary pawl are free of the teeth of the second housing;

a pair of diametrically opposed secondary pawls, each secondary pawl slidable radially with respect to the first housing, having a plurality of radially outward extending teeth, and configured to be driven radially outward by engagement with the secondary cam into an engaged position where the teeth of the secondary pawl engage with the teeth of the second housing, and to be driven radially inward by engagement with the secondary cam into a disengaged position where the teeth of the secondary pawl are free of the teeth of the second housing.

2. (Original) The reclining vehicle seat hinge assembly of claim 1, further comprising a primary spring operable to bias the primary cam into an engaged position.

3. (Original) The reclining vehicle seat hinge assembly of claim 1, further comprising a secondary spring operable to rotatably bias the secondary cam with respect to the primary cam.

4. (Original) The reclining vehicle seat hinge assembly of claim 1, wherein the first housing has a plurality of guide surfaces along which the primary pawls and secondary pawls travel.

5. (Previously Presented) The reclining vehicle seat hinge assembly of claim 1, wherein the secondary cam comprises

a first pair of diametrically opposed slots having first and second camming surfaces configured to drive the secondary pawl into engaged and disengaged positions; and

a second pair of diametrically opposed slots having a camming surface configured to engage a corresponding primary pawl to drive the primary pawl into the disengaged position.

6. (Currently Amended) A reclining vehicle seat hinge assembly comprising, in combination:

a seat pan;

a seat back pivotally connected to the seat pan; and

a hinge assembly pivotally connecting the seat back to the seat pan and comprising

a first housing secured to the seat pan;

a second housing secured to the seat back, pivotable with respect to the first housing,

and having a circular shoulder and a plurality of teeth extending radially inward from the

shoulder;

a primary cam rotatable with respect to the first housing and having a pair of primary camming surfaces;

a secondary cam rotatably driveable by the primary cam and having a plurality of camming surfaces;

a pair of primary pawls, each primary pawl slidable radially with respect to the first housing upon engagement with a corresponding primary camming surface of the primary cam and a corresponding camming surface of the secondary cam, and having a plurality of radially outward extending teeth engageable with the teeth of the second housing; and

a pair of secondary pawls slidable radially with respect to the first housing upon engagement with a corresponding camming surface of the secondary cam and having a plurality of radially outward extending teeth engageable with the teeth of the second housing, the secondary pawls having a construction identical to that of the primary pawls such that the primary and secondary pawls are interchangeable with one another.

7. (Previously Presented) A reclining vehicle seat hinge assembly comprising, in combination:

a first housing having a plurality of guide surfaces formed thereon;

a second housing rotatable with respect to the first housing, and having a circular shoulder and a plurality of teeth extending radially inward from the shoulder;

a primary cam rotatable with respect to the first housing and having a pair of primary camming surfaces;

a primary spring engageable with the primary cam to bias the primary cam into an engaged position;

a secondary cam rotatably driveable by the primary cam and having a first pair of diametrically opposed slots having first and second camming surfaces, and a second pair of diametrically opposed slots having a camming surface;

a secondary spring engageable with the secondary cam to rotatably bias the secondary cam with respect to the primary cam;

a pair of diametrically opposed primary pawls, each primary pawl slidable along a corresponding pair of guide surfaces of the first housing, having a plurality of radially outward extending teeth and a first and a second cam engaging member, the second camming member engageable by a corresponding primary camming surface of the primary cam to drive the primary pawl into an engaged position where the teeth of the primary pawl engage with the teeth of the second housing, the first cam engaging member of the primary pawl engageable by a camming surface of a corresponding one of the second pair of slots to drive the primary pawl into a disengaged position where the teeth of the primary pawl are free of the teeth of the second housing;

a pair of diametrically opposed secondary pawls, each secondary pawl slidable along a corresponding pair of guide surfaces of the first housing, having a plurality of radially outward extending teeth and first and second cam engaging members, the first cam engaging member of the secondary pawl engageable by a corresponding first camming surface of a corresponding one of the first pair of slots to drive the secondary pawl radially outward into an engaged position where the teeth of the secondary pawl engage with the teeth of the second housing, the first cam engaging member of the secondary pawl engageable by a corresponding second camming surface of the corresponding one of the first pair of slots to drive the secondary pawl into a disengaged position where the teeth of the secondary pawl are free of the teeth of the second housing.

8. (Previously Presented) The reclining vehicle seat hinge assembly of claim 7, further comprising a second primary spring, the first and second primary springs cooperating to bias the primary cam into an engaged position.

9. (Previously Presented) The reclining vehicle seat hinge assembly of claim 8, wherein the first and second primary springs are clock springs.

10. (Previously Presented) The reclining vehicle seat hinge assembly of claim 7, further comprising a secondary spring operable to rotatably bias the secondary cam with respect to the primary cam.

11. (Previously Presented) The reclining vehicle seat hinge assembly of claim 10, wherein the secondary spring is a disk spring.

12. (Previously Presented) The reclining vehicle seat assembly of claim 7, further comprising a cam locking member and a washer, the cam locking member and washer cooperating to secure the first and second housings together.

13. (Previously Presented) A reclining vehicle seat hinge assembly comprising, in combination:

a first housing;

a second housing rotatable with respect to the first housing, and having a plurality of radially extending teeth;

a primary cam rotatable with respect to the first housing and having a pair of primary camming surfaces;

a secondary cam driveable by the primary cam and having a plurality of camming surfaces;
a pair of primary pawls, each primary pawl slidable radially with respect to the first housing, having a first cam engaging member, a second cam engaging member and a plurality of radially extending teeth, the first cam engaging member of the primary pawl configured to be driven by a corresponding camming surface of the secondary cam into a disengaged position where the teeth of the primary pawl are free of the teeth of the second housing, the second cam engaging member of the primary pawl configured to be driven by engagement with a corresponding primary camming surface of the primary cam into an engaged position where the teeth of the primary pawl engage with the teeth of the second housing;

a pair of secondary pawls, each secondary pawl slidable radially with respect to the first housing, having a first cam engaging member, a second cam engaging member and a plurality of radially extending teeth, the second cam engaging member of the secondary pawl configured to be driven by engagement with a corresponding camming surface of the secondary cam into an engaged position where the teeth of the secondary pawl engage with the teeth of the second housing, and to be driven by engagement with a corresponding camming surface of the secondary cam into a disengaged position where the teeth of the secondary pawl are free of the teeth of the second housing.

14. (Previously Presented) The reclining vehicle seat hinge assembly of claim 13, further comprising a first primary spring operable to bias the primary cam into an engaged position.

15. (Previously Presented) The reclining vehicle seat hinge assembly of claim 14, further comprising a second primary spring, the first and second primary springs cooperating to bias the primary cam into an engaged position.

16. (Previously Presented) The reclining vehicle seat hinge assembly of claim 15, wherein the first and second primary springs are clock springs.

17. (Previously Presented) The reclining vehicle seat hinge assembly of claim 13, further comprising a secondary spring operable to rotatably bias the secondary cam with respect to the primary cam.

18. (Previously Presented) The reclining vehicle seat hinge assembly of claim 17, wherein the secondary spring is a disk spring.

19. (Previously Presented) The reclining vehicle seat hinge assembly of claim 13, wherein the first housing has a plurality of guide surfaces along which the primary pawls and secondary pawls travel.

20. (Previously Presented) The reclining vehicle seat hinge assembly of claim 13, wherein the secondary cam comprises a plate having

a first pair of slots, each of which has first and second camming edges configured to engage the first cam engaging member of a corresponding secondary pawl, respectively, to drive the secondary pawl into the engaged and disengaged positions, respectively; and

a second pair of slots, each of which has a camming edge configured to engage the first cam engaging member of a corresponding primary pawl to drive the primary pawl into the disengaged position.

21. (Previously Presented) The reclining vehicle seat hinge assembly of claim 13, further comprising a cam locking member and a washer, the cam locking member and washer cooperating to secure the first and second housings together.

22. (Previously Presented) The reclining vehicle seat hinge assembly of claim 6, further comprising a first primary spring operable to bias the primary cam into an engaged position.

23. (Previously Presented) The reclining vehicle seat hinge assembly of claim 6, further comprising a second primary spring, the first and second primary springs cooperating to bias the primary cam into an engaged position.

24. (Previously Presented) The reclining vehicle seat hinge assembly of claim 23, wherein the first and second primary springs are clock springs.

25. (Previously Presented) The reclining vehicle seat hinge assembly of claim 6, further comprising a secondary spring operable to rotatably bias the secondary cam with respect to the primary cam.

26. (Previously Presented) The reclining vehicle seat hinge assembly of claim 25, wherein the secondary spring is a disk spring.

27. (Previously Presented) The reclining vehicle seat hinge assembly of claim 6, wherein the first housing has a plurality of guide surfaces along which the primary pawls and secondary pawls travel.

28. (Previously Presented) The reclining vehicle seat hinge assembly of claim 6, wherein the secondary cam comprises a plate having:

a first pair of slots, each of which has first and second camming edges; and

a second pair of slots, each of which has a camming edge.

29. (Previously Presented) The reclining vehicle seat hinge assembly of claim 28, wherein each secondary pawl further comprises a first cam engaging member and a second cam engaging member, the first and second camming edges of each slot of the first pair of slots being configured to engage the first cam engaging member of a corresponding secondary pawl, respectively, to drive the secondary pawl into the engaged and disengaged positions.

30. (Previously Presented) The reclining vehicle seat hinge assembly of claim 28, wherein each primary pawl further comprises a first cam engaging member and a second cam engaging member, the camming edge of each slot of the second pair of slots being configured to engage the first cam engaging member of a corresponding primary pawl to drive the primary pawl into the disengaged position, and the primary camming surface of the primary cam being configured to engage the second cam engaging member of a corresponding primary pawl to drive the primary pawl into the engaged position.

31. (Previously Presented) The reclining vehicle seat assembly of claim 6, further comprising a cam locking member and a washer, the cam locking member and washer cooperating to secure the first and second housings together.

32. (Previously Presented) A reclining vehicle seat hinge assembly comprising, in combination:

a seat pan;

a seat back pivotally connected to the seat pan; and

a hinge assembly pivotally connecting the seat back to the seat pan and comprising

a first housing secured to the seat pan;

a second housing secured to the seat back, pivotable with respect to the first housing, and having a circular shoulder and a plurality of teeth extending radially inward from the shoulder;

a primary cam rotatable with respect to the first housing and having a pair of primary camming surfaces;

a secondary cam rotatably driveable by the primary cam and having a plurality of camming surfaces;

a pair of primary pawls, each primary pawl slidable radially with respect to the first housing upon engagement with a corresponding primary camming surface of the primary cam and a corresponding camming surface of the secondary cam, and having a plurality of radially outward extending teeth engageable with the teeth of the second housing; and

a pair of secondary pawls configured to be driven radially outward with respect to the first housing upon engagement with a corresponding camming surface of the secondary cam and having a plurality of radially outward extending teeth engageable with the teeth of the second housing.

33. (Previously Presented) The reclining vehicle seat assembly of claim 32, wherein the secondary pawls have a construction essentially identical to that of the primary pawls.